



CLIMATE WATCH

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GCC ON
WORLD WIDE WEB!

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Executive Director's Column

ECONOMIC, ENERGY AND TRADE IMPACTS MUST BE DETERMINED

By John Shlaes

When the Conference of the Parties concluded on April 7, there were many who left Berlin wondering why the delegates had rushed to a decision to begin negotiations on new emissions reduction aims, especially with continuing scientific uncertainty and the high economic stakes.

With the existing treaty in force for only just over a year, a small group of delegates, including the United States, crafted new principles for negotiation with the "aim" of agreeing on a protocol or legally binding agreement "as early as possible in 1997" – less than two short years away.

The deliberants were responding to aggressive lobbying by a group of small island states, which have concerns that

The United States would be hit hardest by such measures, with dramatic impacts on production, transportation costs and U.S. competitiveness internationally.

rising oceans will inundate their shorelines, and by the German-led European Union, which put several serious issues on the table — issues that could have a profound effect on the U.S. economy and its energy-intensive industries. Even though the Berlin meeting only recently concluded, the first negotiating session on the development of this new aim will begin on August 21.

WMO REPORT ON CLIMATE CHANGE IN 1994 CONFIRMS NO INCREASE IN WEATHER ANOMALIES

Findings in the *World Meteorological Organization Statement on the Status of the Global Climate in 1994* match those of other noted meteorological authorities who have found that there has been no increase in severe weather events.

According to the WMO report, "There were numerous extreme climatic anomalies and weather events in 1994, many very destructive, but there is still no scientific evidence that would indicate an increased frequency of such events."

The study goes on to say that "any increases in the number of fatalities, injuries and amount of damage and destruction caused by extreme events can often be related to population increases, especially in those regions most susceptible to climate variability."

The report also finds that 1994 was warmer than 1992 and 1993, but not as warm as 1990 and 1991, stating that "warmth in 1994 has partly resulted from the long-lived El Niño event."

The WMO Statement further notes that "a relatively steady increase in

Continued on page 2

What are the key issues embodied in the "Berlin Mandate" that are beginning to raise so much concern? First, although one can interpret the mandate in several ways, the EU and others will be pushing for firm reduction targets and timetables that would force the United States to reduce its greenhouse gas emissions by 20 percent (accounting for current rates of economic growth, the figure could rise to as high as 40 percent) by 2005 initially, with possible additional reductions in 2010 and 2020. The United States would be hit hardest by such measures, with dramatic impacts on production, transportation costs and U.S. competitiveness internationally. Studies have shown that a reduction of this magnitude could cost the United States an average of 3.1 percent in GDP a year, and the loss of an average of 600,000 jobs a year every year until the year 2010. What's also not publicly stated is that most of those who are pushing for new and dramatic mandates have no hope of achiev-

ing the current aim themselves — that is, reducing their greenhouse gas emissions to 1990 levels by the year 2000.

There's another puzzling question coming out of Berlin as well: Why did the United States and other developed countries agree to negotiate possible new obligations for themselves but allow the developing countries to escape from taking an active role in the global reduction of emissions? Many of these countries, such as China, Korea and India, are rapidly becoming major economic powers and significant trade competitors who will face tremendous growth and environmental challenges in the future.

There are some important concepts, including Joint Implementation and Technology Cooperation, that can enhance sustainable growth between developed and emerging nations. Though there was agreement to discuss these areas further and take a few "first steps," the parties to the Framework Convention will be negotiating addi-

Continued on page 4

INTERNATIONAL NEWS UPDATE

DENMARK PLANS TO
INTRODUCES A CO₂ TAX

Denmark plans to introduce a \$6.50 per metric ton CO₂ tax next January that will eventually triple by 1998. This measure is supposed to stabilize CO₂ emissions to 1990 levels by 2000. The European Commission approved the proposal in late July.

The Confederation of Danish Industries believes the energy tax will hurt its members' competitiveness and is opposing it. It further complains that companies that invest in energy-saving technologies can only get a 30 percent break on their expenditures. (CHEMICAL WEEK: 6/21)

EMISSIONS DECLINE IN
JAPAN AND U.K.

Japan and the U.K. recently reported a decline in greenhouse gas emissions.

In Japan, carbon dioxide emissions dropped during fiscal 1993 by 1.8 percent. This is the first time Japan's Environment Agency (EA) has reported a reduction since 1986, when an economic slump brought emissions down. A slower economy and a cooler, wetter summer are cited as the reasons for a decrease of energy usage, resulting in lower emissions. However, an EA official warned that "given the hot summer in fiscal 1994, emissions are likely to increase again." (KYODO: 6/21)

In the United Kingdom, growth in electricity generation climbed 17 percent, while emissions declined during the period from 1979 to 1993. According to Electricity Association chief executive Philip Daubney, "the introduction of

NOx burners, flue gas desulfurization and a widened use of lower sulfur fuel supplies" are to be credited for the reductions. "Industry action is achieving real and tangible results in reducing atmospheric emissions," he said. (COAL AND SYNFUELS TECHNOLOGY: 6/2)

TORONTO GLOBE POURS
COLD WATER ON FOREST
FIRE CLAIMS

A recent editorial in the *Toronto Globe* contended that the statistics used to blame recent forest fires on so-called global warming were confusing and unfounded. Proponents of the idea, according to the *Globe*, include The Sierra Club and government climate modelers.

The editorial argued that nobody knows how much this or any other year's burning reflects past bad management practices, natural variation, better monitoring, or global warming. "Since 1985, the number of forest hectares burned yearly has bounced around like spit on a hot skillet...The trend has been up and down, not up and up," says the editorial.

"The yearly average burn levels from a thousand, or even a hundred years ago are unknown. Forest officials will admit that it is only from the mid-1970s that satellite imagery allowed for truly accurate accounting. From 1940-1970, fires were actively suppressed until scientists began to realize that a fireless forest is unnatural. Today it is understood that fire is renewal. It clears away dead and dying trees, allowing new and different species to be born and flourish." (TORONTO GLOBE AND MAIL: 6/19)

GERMAN GREENS WANT
MORE TAXES

A power shift from recent elections in Germany has revitalized the debate on the need to emphasize ecological priorities through a national energy tax.

In the past, the Christian Democratic Union/Christian Socialist Union (CDU/CSU) and the Free Democratic Party (FDP) have opposed such a measure. However, with the Greens gaining power, it has become politically expedient for the groups to shift their course.

Under CDU/CSU leader Wolfgang Schaueble, a new tax policy called "Tax Concept 2000" is being drafted in committee. Although far from radical, the legislation is rumored to include elimination of several "counter-productive" elements, like gas oil rebates for farmers, and the introduction of some ecologically-oriented incentives.

The FDP has also been showing more direct support for ecological changes. Economics minister Guenter Rexrodt (FDP) reportedly has plans for a "national CO₂ tax model." Though he has stated that he favors an ecological tax shift, he believes the shift should be gradual so that competition is not hindered.

The Greens have offered a proposal which presses for taxing electricity, nuclear energy, fossil fuels and CO₂ emissions. (POWER EUROPE: 7/8)

DOE CONTINUES TO PUSH JI

On June 9, US Energy Secretary Hazel O'Leary and representatives from seven Central American governments met in Costa Rica to sign the world's first regional agreement to accelerate the development of Joint Implementation (JI) pilot programs. The US has approved seven JI projects as part of the first round of its pilot program, including three in Costa Rica, one in Belize and one in Honduras.

Under JI, developed countries gain credit for greenhouse gas emission cuts by financing projects to reduce such emissions in developing countries. (DOE RELEASE: 6/9)

WMO Report (Continued from front page)

total Arctic sea-ice extent has been observed since July 1993." This finding appears to strengthen the conclusions of a study completed by the George C. Marshall Institute earlier this year. The *Global Warming Experiment* found that "the Arctic had been growing colder, not rapidly warmer as predicted by the greenhouse calculations."

The information in the WMO Statement resulted from a compilation of land surface air temperature data collected from about 1,400 surface stations, and from oceanic surface temperatures based on approximately two million measurements from ships and buoys.

For more information, contact the World Meteorological Organization in Geneva, Switzerland. ●

GLOBAL TEMPERATURE REPORT

Global composite temperatures for May continued a nine-month pattern of random wandering around seasonal averages, but readings in the Southern Hemisphere maintained a 44-month trend of cooler than normal readings according to Dr. John Christy, associate professor of atmospheric science in the Earth System Science Lab at the University of Alabama in Huntsville (UAH).

These temperature readings, which are gathered by microwave sounding units on the National Oceanic and Atmospheric Administration's (NOAA) TIROS-N satellites, started a run of below seasonal norms in both hemispheres in late 1991. Dr. Christy explains that this was due to the eruption of Mt. Pinatubo in June of that year. "Temperatures in the Northern Hemisphere have largely rebounded," Christy reported. "They were above normal for twelve of the last 20 months."

"During the same time, however, temperatures in the Southern Hemisphere rose above seasonal norms only five times and never more than one-tenth of a degree."

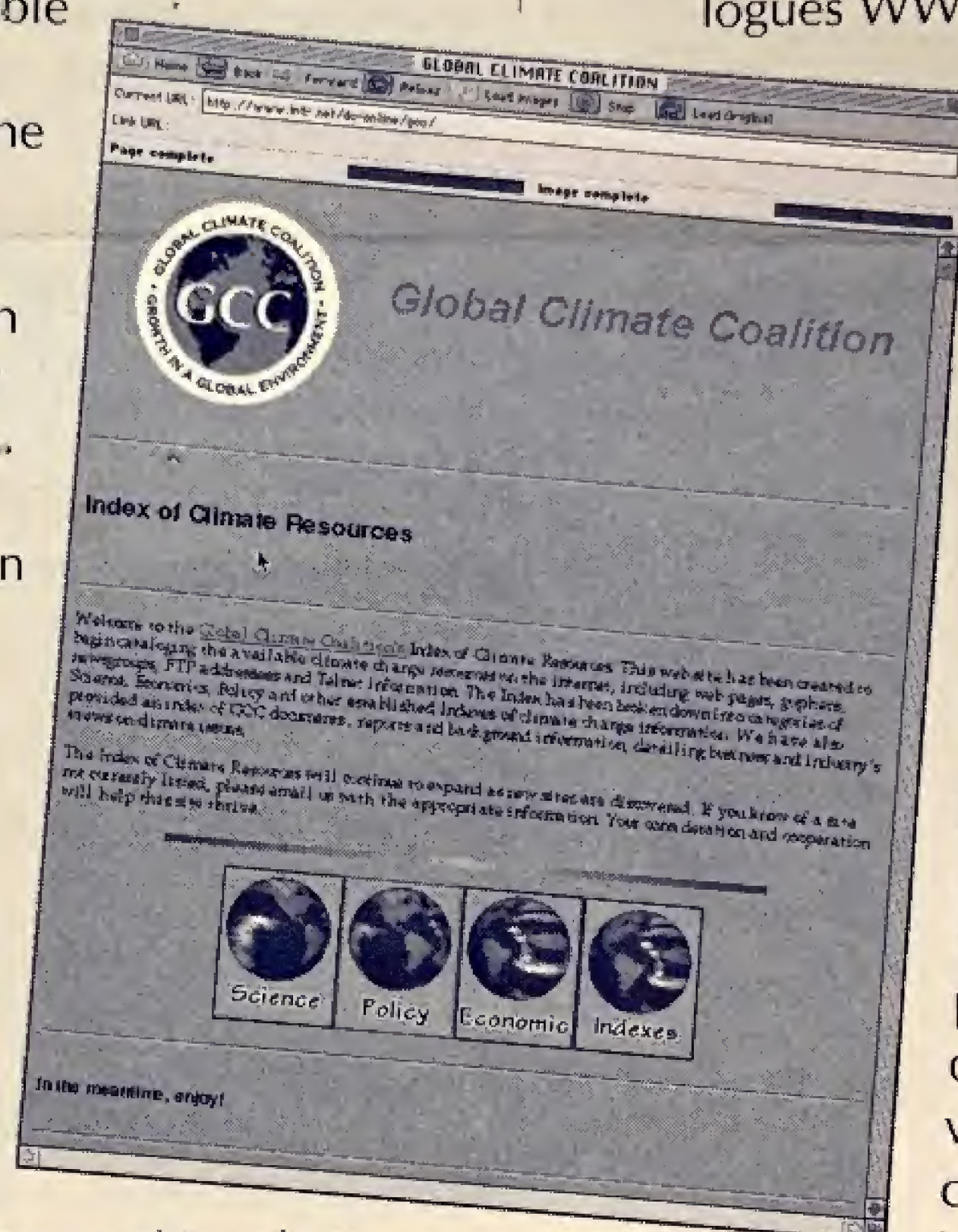
Christy believes the diverging climate trends could be attributed to geography. He noted that oceans cover a larger portion of the Southern Hemisphere than of the Northern Hemisphere. Oceans tend to "buffer" climatic effects of such events as volcanic eruptions but also cause a slower return to normal than do land masses.

"The 'lag' effect of the oceans," says Dr. Christy, "could explain these continued cool temperatures, especially when you look at the specific regions which have been cool."

Dr. Christy and UAH participate in an ongoing project with the National Aeronautics and Space Administration (NASA) to collect information from the NOAA satellites to get accurate temperature readings for almost all regions of the Earth. The temperature readings are processed monthly to determine 10-year and seasonal trends. ●

GCC'S ON THE WEB...

The Global Climate Coalition is now on the World Wide Web, offering an index of climate resources and Coalition information to interested Internet users. By pointing a "web browser" to <http://intr.net/dc-online/gcc>, the user will find dozens of climate change resources available on the Internet. Want to know the status of the Framework Treaty? Click on UNEP/FCCC for the Climate Change Secretariat's own Home Page in Geneva (here users can read and download the text of the Framework Convention on Climate Change and other official documents). Interested in what climate programs the United States is sponsoring? See what the Department of Energy and EPA have to offer in the GCC's list of U.S. Government agencies on the Internet.



Several GCC papers and background reports are available in our Documents Directory.

The GCC's Index of Climate Resources is a cohesive index of resources on climate change that now are scattered about the globe. The Index of Climate Resources catalogues WWW Home Pages,

Gopher Sites, Telnet addresses and FTP sites that deal with the issue of climate change and global warming. The Index is broken up into four subject areas: Science, Policy, Economics and Indexes of climate resources. GCC reports, background papers and studies detailing industry's views on climate change and related issues also are being

loaded onto the WEB.

Updated regularly, the GCC's Index of Climate Resources provides a valuable resource for anyone tracking this issue. ●

ECONOMICS CONFERENCE ON BERLIN MANDATE

On September 13, a U.S. conference to provide an "Economic Perspective on Climate Change Policies" will be conducted by the American Council for Capital Formation (ACCF), a non-profit, non-partisan economics policy think tank. Topics to be addressed include: economic analysis, costs and benefits of different carbon dioxide emissions reduction strategies, the impact of timing on costs, international competitiveness, the likely impact of emission reductions on living standards, and opportunities and pitfalls of Joint Implementation.

Speakers will include noted economists from Stanford University, the University of Maryland, the Carnegie Mellon University, U.S. governmental agencies, public policy organizations such as Resources for the Future and Pacific Northwest Laboratory (Battelle), and industry. Registration fees are \$45 for government employees, \$95 for ACCF and GCC members, and \$125 for the general public. Hotel accommodations are available. ●

For more information, contact **ACCF Center for Policy Research**, 1750 K Street, NW, Suite 400, Washington, DC 20006-2300. Phone: (202) 293-5811. Fax: (202) 785-8165.

SCIENCE UPDATE

Preliminary Schedule of Upcoming International Meetings on Climate Change: 1995, 1996, 1997

August 1995

Ad Hoc "Berlin Mandate Group" (Geneva)
Subsidiary Body for Implementation (Geneva)
Subsidiary Body for Scientific & Technological Advice (Geneva)

September 1995

IPCC Synthesis Working Group (Washington, DC)

October 1995

Ad Hoc "Berlin Mandate Group" (Geneva)
Ad Hoc "Article 13 Group" (Geneva)
IPCC Working Group II Plenary (Paris or Greece)
IPCC Synthesis Working Group (Location TBD)
Climate Technology Initiative Meeting (Geneva)

November 1995

IPCC Working Group I Plenary (Madrid)

December 1995

IPCC Plenary (formal adoption of Second Assessment Report) (Venice)

January 1996

Intergovernmental Technical Advisory Panels (Location TBD)

February 1996

Subsidiary Body for Implementation (Geneva)
Subsidiary Body for Scientific and Technological Advice (Geneva)
Ad Hoc "Article 13 Group" (Geneva)

March 1996

Ad Hoc "Berlin Mandate Group" (Geneva)

April 1996

International Technical Advisory Panels (Location TBD)

July 1996

Subsidiary Body for Implementation (Location TBD)
Subsidiary Body for Scientific & Technological Advice (Location TBD)
Ad Hoc "Berlin Mandate Group" (Location TBD)
Ad Hoc "Article 13 Group" (Location TBD)

October 1996

Second Conference of the Parties (Tentative) (Montevideo, Uruguay)

March 1997

Subsidiary Body for Implementation (Location TBD)
Subsidiary Body for Scientific & Technological Advice (Location TBD)
Ad Hoc "Berlin Mandate Group" (Location TBD)

October 1997

Third Conference of the Parties (Tentative) (Kyoto, Japan)

December 1997

Subsidiary Body for Implementation (Location TBD)
Subsidiary Body for Scientific & Technological Advice (Location TBD)

METEOROLOGIST SLAYS GREENHOUSE "MONSTER"

Apparently frustrated by scientists pushing "global warming" as the cause of the change in frequency of El Niño events, meteorologist James O'Brien told *Earth* magazine in its June issue that "I don't believe it for a minute. This has happened before, so I'm not going to attribute it to some scary monster called greenhouse warming." Director of the Center for Ocean-Atmosphere Prediction Studies at Florida State University, O'Brien points to records of frequent El Niño events between 1939 and 1941.

"I'm not going to attribute it to some scary monster called greenhouse warming."

Generally, El Niños occur every three to seven years, but the latest El Niños have come more frequently, 3 times in the last 4 years. Satellite observations reveal that the most recent El Niño was double the strength of the previous one.

Kevin Trenberth of the National Center for Atmospheric Research (NCAR) notes that temperatures in the tropical Pacific have been rising since the 1970s. He suggests that the ocean is absorbing more heat induced by greenhouse warming and, therefore, is not experiencing ocean cooling, as it did in the past between El Niño cycles, thus bringing the phenomenon more frequently.

However, oceanographer Gregg Jacobs suspects that remnants of past El Niños are affecting the cycle. He has detected Rossby waves, which are defined as abnormally warm regions of the ocean. They are smaller than El Niños, but created by them when the warm water bounces back from the continents.

Utilizing satellite observations of water

movements in the Pacific, Jacobs and his colleagues detected a Rossby wave which he links to the 1982-83 El Niño, called "the El Niño of the century."

While Trenberth is skeptical about Rossby waves, meteorologist James O'Brien supports Jacobs' claims. "It's a new way to think about the memory of the ocean. If they hadn't had the satellite confirmation, nobody would have believed it, including me."

(*EARTH*: June 1995)

NATURE TAKES CONTROL OF CO₂ EMISSION RATES

Oceanographer Charles Keeling and colleagues at the Scripps Institution of Oceanography have discovered that nature plays a stronger role in carbon dioxide emissions than previously known. Their findings throw serious doubt on the ability of existing climate models to accurately predict future CO₂ increases.

Scientists have previously been unable to explain two deviations in the rise in carbon dioxide emissions since 1955. The first deviation occurred around the mid-1980s when the rate of CO₂ emissions increased even while industrial emissions decreased. The second deviation occurred during the period 1988 to 1993 when the rate of CO₂ emissions growth slowed more dramatically than industrial emissions.

Keeling and his colleagues, in the June 22 issue of *Nature*, suggest that sea surface warming and faster plant growth are the cause. They concluded that sea surface warming caused by previous El Niños triggered the mid-1980s rise. Increased plant growth from 1988 to 1993 allowed greater storage of carbon, which slowed the rate of increase for that period. Therefore, "environmental factors appear to have imposed larger changes on the rate of rise than did changes in fossil fuel combustion rates, suggesting uncertainty in projecting future increases."

(*WASHINGTON POST*: 6/26)

Director's Column

Continued from front page

tional aims before they develop the context for Joint Implementation. The treaty negotiations as they now stand will not accelerate the kind of technology cooperation that is needed to deal with the rapid greenhouse gas emissions growth many of these countries will experience.

One should not lose sight of a few key concerns that industry strongly recommended be addressed **before** the Berlin meeting. For one, we are moving into major international decision making without first assessing what impacts those decisions will have on the United States' comparative economic relationship with other countries. Additionally, there are no comparable reference points between countries on such important factors as emissions growth, economic projections, energy mix and a range of other issues. Further, some European countries will not allow verification of their facilities and processes to authenticate their reports and projections. Moreover, of the over 170 parties that participated in the Berlin Mandate discussions over 144 will not have submitted information by the time new negotiations are underway.

Before any new commitments are undertaken, a serious, comprehensive analysis must be completed to fully understand the economic, energy and trade impacts these decisions will have on the United States and other nations. We live in a global and increasingly competitive world, and any international decisions that affect the availability, price and flow of goods and services could have profound impacts on the quality of life and jobs in the United States and elsewhere. As a result, several questions need to be answered before the United States can move ahead in agreeing to new commitments:

■ *What would be the result of new commitments by Annex I Parties (the OECD nations plus the former Soviet Union and Eastern European countries) towards achieving the ultimate objective of the Convention (stabilizing of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system)?*

■ *What are the domestic implications of a protocol or other legal instrument containing new commitments?*

■ *What are the potential impacts on the overall U.S. economy from such commitments, including inflation, interest rates, gross domestic product, employment and business investment?*

■ *What would be the effects of such commitments on cost, output and employment by industry, including re-training costs, with special attention to industries that are high energy users or vulnerable to trade effects (recognizing that any major cost increase will ultimately be passed on to consumers)?*

■ *What are the potential impacts on international trade and trade agreements, not only for US trade with other Annex I countries but also with non-Annex I countries?*

■ *What would be the effects of new commitments by Annex I Parties on the exports of non-Annex I Parties and the price to them of imported goods and services?*

■ *What government policies and measures, over and above voluntary actions, would be needed to enable countries to achieve the targets and timetables proposed for them?*

In conclusion, even with the enthusiasm expressed in Berlin by some, responsible governance would dictate a policy that assures that comprehensive and internationally comparable analyses of the key economic, trade, growth and job factors serve as a basis for future agreements. It is important to establish the same criteria in international decision making as we do when making our decisions here at home, especially when we have no scientific imperative and a great deal at stake. ●

REDUCING CLIMATE CHANGE MITIGATION COSTS BY HALF

Current policies that favor political timetables (like the year 2000) for establishing greenhouse gas (GHG) mitigation targets may double the costs of those efforts without adding any long-term benefits. That's the conclusion of economists Richard Richels and Jae Edmonds in a paper prepared for the Intergovernmental Panel on Climate Change.

Under the terms of the Framework Convention on Climate Change, implementation costs are not a principal consideration in the choice of concentration limits. What is missing is a recognition that economic analysis can help identify emissions paths that minimize the expense of achieving the desired concentration level.

Richels is Director of the Energy Analysis and Planning Department at the Electric Power Research Institute, and Edmonds is Technical Leader of the Economics Program at Battelle, Pacific Northwest Laboratories. According to their research, more relaxed emissions policies in the early years and stricter policies in the later years can reduce costs by as much as fifty percent.

The marginal cost of abatement is highest in the early years for two reasons:

■ *Energy efficient technologies are often embedded in long-lived durable goods (autos, housing, equipment, structures) that will not be replaced instantaneously. The time scale for large-scale deployment of new supply technologies is typically measured in decades. Although policy can attempt to accelerate the process, the cost will be high.*

■ *There are constraints on the rate at which new supply and end-use technologies can enter the marketplace. If we allow ourselves to emit more in the early years when the marginal cost of emissions abatement is high, the "pay back" can come in later years when low-cost technological alternatives are more plentiful.*

The issue is timing. Time is needed both for an economical turnover of the existing capital stock and for developing ample supplies of low-cost substitutes.

The authors conclude that international negotiators would do well to recognize that the perceived price tag will undoubtedly influence the willingness of nations to comply with the treaty. A particular target can be achieved in a variety of ways. Rather than choosing arbitrary emissions trajectories, more attention needs to be devoted to selecting those paths which minimize the costs of achieving equivalent future results. ●

For more information, contact Richard Richels (EPRI) at (415) 855-2602.

FUTURE TECHNOLOGIES KEY TO CO₂ REDUCTION EFFORTS

Long-term solutions to concerns about climate change will rely heavily on technologies yet to be invented. A growing number of economists are beginning to write about the benefits of moving away from political targets (like the year 2000) to engage emissions reductions schemes, preferring instead to take advantage of the natural evolution of new, more efficient technologies into the marketplace. They will find support in the International Energy Agency's (IEA) new publication ***Energy Technologies To Reduce CO₂ Emissions in Europe: Prospects, Competition, Synergy***. The report concludes that the development and deployment of new and improved technologies will be essential if atmospheric concentrations of greenhouse gases are to be reduced significantly.

This volume of well referenced review papers — presented at the Expert Workshop on Energy Technologies to Reduce Emissions in Europe: Prospects, Competition, Synergy, which was held on April 11-12, 1994 in the Netherlands — explores the prospects in Europe for a wide range of new and improved energy technologies, and examines the interrelationship between those technologies over the longer term, under a scenario of drastically reduced CO₂ emissions. Prospective state-of-the-art projections for the year 2020 are provided for a wide range of energy technologies.

For more information call the IEA at (202) 785-6323 or call (800) 456-6323 to order a copy for \$52.

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UTILITY'S FOREST CARBON MANAGEMENT PROGRAM IN HIGH GEAR

The Utility Forest Carbon Management program, sponsored by 52 electric utilities, is off to a successful start having already received more than 30 proposals for forestry projects to manage greenhouse gases. The initiative is aimed at developing economical methods to reduce carbon dioxide emissions, the primary component of GHG.

The forestry proposals are diverse, including projects that would: enhance existing carbon sinks, create new carbon sinks by planting on marginal agricultural lands or degraded forest sites, store carbon in wood products, conserve energy through shade trees, and use biomass as fuel to produce electricity. The proposed projects are located in the United States, Central and South America, and Asia.

The Utility Forest Carbon Management program is another example of the utility industry's involvement in the Climate Challenge program. This effort will add to the 44 million metric ton reduction in greenhouse gas emissions that DOE

has estimated the Climate Challenge program will bring by the year 2000. ●

For additional information, contact Peter Jump at Edison Electric Institute at (202) 508-5657.



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